



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellants: Wilfried Jaehner et al. Conf.: 5042  
Appl. No.: 09/341,368 Art Unit: 2836  
Filed: October 5, 1999 Examiner: Ronald W. LEJA  
For: REDUCING TENSIONING TIME FOR ELECTRONICALLY  
CONTROLLED SWITCH CONTACTORS

**MAIL STOP APPEAL BRIEFS - PATENT**

February 9, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

This is an appeal of the Examiner's final rejection of claims 5 and 7 of the present application, in support of the Notice of Appeal filed on August 7, 2003, the due date having been extended four (4) months to February 9, 2004 (a Monday following Saturday due date). A copy of the final rejected claims 5 and 7 appears in the attached Appendix A.

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**I. Real Party Of Interest**

This application is assigned to SIEMENS AKTIENGESELLSCHAFT of Munich, Germany by an Assignment recorded on October 7, 1999 at Reel 010291, Frame 0931.

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**II. Related Appeals and Interferences**

The undersigned, the Assignee and Appellants do not know of any appeals or interferences which would directly affect or be directed affected by or have a bearing on the Board's decision in this Appeal.

**III. Status of the Claims**

Claims 5 and 7 are reproduced in the attached Appendix A and are the claims on appeal. These claims have been finally rejected by the Examiner in the Office Action of May 7, 2003.

**IV. Status of the Amendments**

A Reply under 37 C.F.R. 1,116 was filed on December 6, 2003 in response to the Examiner's Final Rejection of February 7, 2003. Only arguments were provided, with no amendments. The Examiner, in an Advisory Action dated January 6, 2004, stated that the arguments were not persuasive, and indicated that the Reply would not be entered. As the Reply contained only arguments and no amendments to the claims, it is presumed that the Reply will be entered upon the filing of the present Appeal Brief.

**V. Summary of the Invention**

The present application relates to a solenoid system for switchgear, in particular, relays and/or contactors. The system includes an armature (8 of Figure 1); a yoke (1 of Figure 1); a coil interacting with the yoke to move the armature (5 of Figure 1); at least one sensor for detecting actual values of a drive specific switching parameter such as a

flux sensor (7 of Figure 1 for example); and a control device (6 of Figure 1). This is further described on page 3, lines 19-24 of the present application. The control device is one which does not affect an output quantity for controlling the coil until a flux threshold value is attained, wherein the output quantity is that of a coil current for example.

Figure 2 of the application illustrates a variation of magnetic flux  $\Phi$  in an air gap of the yoke over a time T (see Figure 2 for example). As illustrated in Figure 2, curves A and B show variation of the magnetic flux  $\Phi$ . Element A of Figure 2 illustrates uncontrolled variation of the magnetic flux  $\Phi$ , wherein the entire control voltage  $u$  is always applied to coil 5. This may result in chatter on the fixed contact of the switchgear. Curve B illustrates that a flux change exists up to the moment  $T_3$ , and illustrates that flux remains constant only after that time. In other words, as soon as a predetermined flux  $\Phi_1$  is attained, coil current  $I$  is controlled so that the value  $\Phi_1$  of the flux is maintained virtually constant during the remaining time of the closing operation and during the holding phase of the contactor. Thus, after the elapse of a certain period of time  $T_1$  after the switch-on command of the contactor, control device 6 intervenes and, based on the value transmitted by flux sensor 7, reduces, by time  $T_3$ , coil current  $I$  and thus flux  $\Phi$  to flux  $\Phi_1$ . This flux value is sufficient for maintaining the contactor closed, while reducing chatter (see Figure 2 and page 3, line 25 – page 4, line 13 of the present application).

As such, by providing such a solenoid system for switchgear with such a control device, which does not affect coil current for controlling the coil until a flux threshold value is attained, the switching functions of the switchgear can be controlled in a manner which permits proper closing speed of the contact with reduced chatter and with low

power consumption during the holding phase of the contactor (see page 2, lines 17-37 of the present application).

**VI. Issues**

- 1) Whether or not claims 5 and 7 of the present application are unobvious under 35 U.S.C. § 103 in view of the teachings of Dick, U.S. Patent No. 3,671,814 ( the Dick '814 patent) in view of Moran et al., U.S. Patent No. 5,784,244 ( the Moran '244 patent).
- 2) Whether or not the reference combination is proper; namely, whether or not the Examiner has provided sufficient evidence of motivation which would lead one of ordinary skill in the art to combine the teachings of the Dick patent with those of Moran et al.

**VII. Grouping of the Claims**

Appellants respectfully submit, for the purposes of this Appeal, that claims 5 and 7 stand and fall together.

**VIII. Arguments**

**8a) The Examiner's Rejections**

The Examiner has rejected claims 5 and 7 under 35 U.S.C. § 103(a) as being unpatentable over the Dick '814 patent in view of the Moran '244 patent. The Examiner alleges that the Dick '814 patent discloses a solenoid system comprising an armature (4), a yoke (3) and a coil (2) interacting with the yoke to move the armature. The Examiner

alleges that sensors detect the actual values of drive-specific switching parameters wherein when a flux threshold is reached, the control device controls the coil current (citing column 1, lines 60-61, column 4, lines 14-22; 60-64 and column 5, lines 73-column 6, line 27). **The Examiner acknowledges that the Dick '814 patent does not specifically disclose that the solenoid system is for a switchgear application.**

In an effort to make up for the acknowledged deficiencies of the Dick '814 patent, the Examiner attempts to combine its teachings with the Moran '244 patent. The Examiner alleges that the Moran '244 patent teaches the use of solenoid systems for switchgears. The Examiner then alleges that it would have been obvious to utilize the disclosure of the Dick '814 patent in any solenoid system application, such as a switchgear application, so as to be able to precisely control switchgear operation with a simple and light-weight structure which is adapted to generate a relatively large distance-independent linear force and with which the magnitude and direction of the force may be altered in a rapid manner. The Examiner alleges that this flux-detecting control scheme allows the avoidance of large and heavy solenoids having higher current consumption while obtaining larger armature forces.

**8b) Appellants Response to The Examiner's Rejections**

Appellants respectfully submit that even assuming arguendo that the Dick '814 and the Moran '244 patents could be combined, which Appellants do not admit, the alleged combination would still fail to teach or suggest a solenoid system for switchgear comprising at least a control device which does not affect coil current until a flux threshold value is attained as claimed in claim 5.

As set forth throughout the background, object and text of the present application, Appellants' invention relates specifically to switchgear, and relates to reducing chatter and lowering power consumption during a holding phase of a contactor. Appellants' switchgear results in proper closing speed and reduced chatter of the contact, as well as low power consumption during the holding phase of the contactor. This is achieved by, among other features, having the control device not affect coil current until a flux threshold value is attained (see page 2, lines 9-28 of the present application for example). More specifically, as shown with regard to Figure 2 of the present application, as a magnetic flux is detected, only when the predefined or threshold flux  $\Phi_1$  is attained, is coil current controlled so that the value  $\Phi_1$  of the flux is maintained virtually constant during the remaining time of the closing operation during the holding phase of the contactors (see element C of Figure 2, noting a constant flux value  $\Phi_1$  after a time  $T_3$ ). This allows for both a proper closing time of the contacts, and reduced chatter.

**The Dick '814 patent has nothing to do with switchgear, as acknowledged by the Examiner.** However, instead of recognizing the differences between the electromagnetic system of the Dick '814 patent and the switchgear system of the present application as claimed in claim 5, the Examiner finds a switchgear system in the Moran '244 patent and provides an opinion as to why he believes that the system of the Dick '814 patent can be applied to switchgear. Appellants do not believe that sufficient motivation for combining the prior art references has been provided by the Examiner. This will be addressed in detail, in the last section of these arguments.

Regarding the Dick '814 patent, this patent is directed to an electromagnetic system, and specifically to an electromagnet as shown in Figure 1 for example. Although the Dick '814 patent includes some type of iron cladding 3, and armature 4, and a coil 2, **it is not a switchgear system as claimed in claim 5**; and thus it deals with different problems and achieves different objects. For example, the object of the Dick '814 patent deals with an improved electromagnetic device of a simple and lightweight structure **which is adapted to generate a relatively large, distance-independent linear force. Such a large linear force would clearly not be desirable in a switchgear system as such a force would lead to contact bouncing or chatter.** Thus, such an electromagnetic system as taught by the Dick '814 patent would actually teach away from any switchgear system, and especially the switchgear of the present application which contains a device capable of both reducing chatter, achieving a proper contact closing speed, and having low power consumption during the holding phase of the contacts.

In addition, **the Dick '814 patent no type of control device of a switchgear drive as claimed in claim 5**, as there is clearly no aspect of switchgear in the Dick '814 patent. Instead of acknowledging the deficiency of such a control device in the Dick '814 patent, the Examiner attempts to equate a field resistor 8 (or even a Hall-generator 8 as indicated in the Examiner's Advisory Action) to both the flux sensor 7 and the control device 6 of the present application. This is clearly incorrect and improper for at least the following reasons.

Again, as previously submitted, the electromagnet of the Dick '814 patent clearly deals with different problems and issues than that of switchgear. The electromagnet in

the Dick '814 patent is directed to generating a distance-independent force and altering the magnitude and force in a rapid manner. To do so, it includes a field resistor 8 which is responsive to magnetic field strength and which alters its resistance in the same sense as a change of a traversing magnetic flux (see column 2, lines 25-30 for example).

Although “flux” is mentioned in the Dick '814 patent, this is merely ancillary as **there is clearly no teaching or suggestion in the Dick '814 patent of any control device, let alone a control device which does not affect coil current for controlling the coil until a flux threshold value is attained.** Instead, points between two resistor 8 and 14 are measured at a measuring point 148, and another measuring point 165 is measured between resistor parts 15 and 16 of a variable resistor. When potential of one point changes with respect to the other point, a magnet is either energized or de-energized. Essentially, this is a two-point control for lifting of the magnet which leads to energization or de-energization of the coil (see column 3, lines 1-25 for example).

Thus, although magnetic flux is mentioned throughout the Dick '814 patent, **this has nothing to do with attaining a flux threshold value** such as that shown as element  $\Phi_1$  of Figure 2 of the present application, **let alone utilizing this value as a trigger point for control device affecting coil current of the switchgear system, as claimed in claim 5** of the present application. There is no control device, no flux threshold value, nor any type of switchgear system taught or suggested by the Dick '814 patent, taken either alone or in combination with the Moran '244 patent.

With regard to the teachings of the Moran '244 patent, even assuming arguendo that it could be combined with the Dick '814 patent, it would still fail to make up for at least the previously mentioned deficiencies of the Dick '814 patent. The Moran '244

patent is merely directed to a type of electronic circuit for controlling the closing velocity of switchgear, **and thus has nothing to do with a specific type of control device utilizing a flux threshold value as set forth in claim 5 of the present application.** The Moran '244 patent sets forth its own methodology of limiting closing velocity of electrical switchgear and minimizing contact bounce, and thus adds nothing to the teachings of the electromagnet of the Dick '814 patent. Accordingly, Appellants respectfully submit, for the reasons set forth above, that the alleged combination of the Dick '814 patent and the Moran '244 patent fail to teach or suggest the solenoid system for switchgear as set forth in claim 5, including a control device which does not affect output coil current until a flux threshold value is attained.

**8c) The Alleged Combination of the Dick '814 Patent and the Moran '244 Patent Is Improper**

In addition to the deficiencies of the alleged combination of Dick '814 and the Moran '244 Patents, even assuming arguendo that they could be combined, Appellants respectfully submit that **the reference combination alleged by the Examiner is improper.** Appellants note that very rigorous requirements have been set forth for establishing a prima facie of obviousness under 35 U.S.C. § 103(a), based upon the Court of Appeals for the Federal Circuit (CAFC) decisions of *In re Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999) and *In re Kotzab*, 55 USPQ2d 1313 (Fed. Cir. 2000). To establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the

specific combination that was made by the applicant or appellant. The motivation, suggestion or teaching may come explicitly from the statements in the prior art, the knowledge of one of ordinary skill in the art, or in some cases, the nature of the problem to be solved. See *Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999).

Appellants respectfully submit that the Examiner has not met any of the criteria of *Dembiczak*, and **has not pointed to any type of motivation, other than his own opinion,** for combining the references. **The Examiner has not provided any evidence** as to why one of ordinary skill in the art would be led to combine the teachings of the electronic circuit for controlling electrical switchgear as taught by the Moran '244 patent, with the electromagnet system of the Dick '814 patent.

**The Examiner has not indicated any teaching or suggestion in either the Moran '244 patent or the Dick '814 patent which would support their combination,** let alone suggest their combination in a manner which would render claim 5 of the present application obvious. The Examiner has merely pointed to the Moran '244 patent as being generally relevant as being directed to a system used for electrical switchgear; **but the mere existence of a switchgear system does not provide any type of teaching or suggestion for utilizing the electromagnet system of the Dick '814 patent in the field of controlling electrical switchgear.**

In order to establish a prima facie case of obviousness under § 103 (a), the Examiner must provide particular findings "as to why the two pieces of prior art are combinable." See *Dembiczak*, 50 USPQ2d at 1617 (emphasis added). Broad conclusory statements, such as those utilized by the Examiner, standing alone are not "evidence". Relying on personal opinion, common knowledge or common sense of a person of

ordinary skill in the art, without any specific hint or suggestion of this in a particular reference, is not a proper standard for reaching the conclusion of obviousness (see *In re Sang Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002)). The Examiner has merely looked at Appellant's invention, in hindsight, and has attempted to reconstruct Appellants' invention using existing prior art. **This is clearly an improper use of hindsight** and does not provide a proper prima facie case of obviousness under 35 U.S.C. § 103(a). Accordingly, the Examiner's rejection must be overturned.

In addition, if the Examiner is relying on personal knowledge to support a finding of what is known in the art, the Examiner **must provide** an affidavit or declaration setting forth specific factual statements and explanations to support the finding (see 37 C.F.R. 1.104(d)(2) and MP P2144.03(c)). Accordingly, Appellants respectfully challenge the Examiner's use of personal opinion and respectfully require the Examiner to withdraw the rejection or provide an affidavit or declaration as set forth above if the rejection is to be maintained. Further, if such an affidavit or declaration is provided, Appellants respectfully request the Examiner to withdraw the finality of the outstanding Office Action and to issue a new Non-Final Office Action.

Finally, Appellants note that a prior art reference may be considered as teaching away from a combination when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in the direction divergent from the path that was taken by the applicant or appellant (see *In re Gurley*, 31 USPQ2d 1130 (Fed. Cir. 1994)). As previously discussed, it is clear that the Dick '814 patent is directed to an electromagnet, and to providing a relatively large distance-independent linear force (see column 1, lines 55-59 for

example). **The use of such a high linear force in a switchgear arrangement, would lead to contact bouncing, which is clearly undesirable.** Accordingly, such a teaching or suggestion in the Dick '814 patent would clearly **teach away from any combination with the Moran '244 patent which is directed to minimizing contact bounce** (see the Abstract, column 3, lines 3-9 for example). With such a teaching away, one of ordinary skill in the art would clearly not be led to combine the teachings of the Moran '244 patent, with those of the Dick '814 patent. Accordingly, for these further reasons, the Examiner's rejection must be overturned.

### **CONCLUSION**

It is respectfully submitted that the rejection of each of claims 5 and 7 under 35 U.S.C. § 103 as being unpatentable over the alleged combination of the Dick '814 patent and the Moran '244 patent is in error and should be reversed. There are clearly deficiencies in the prior art references to Dick and Moran, taken either singly or in combination, including a **control device which does not affect coil current for controlling the coil until a flux threshold value is attained, as set forth in claim 5.** Further, the Examiner has failed to provide any type of motivation for combining the teachings of the Dick '814 patent and the Moran '244 patent. In addition, the references themselves provide teachings away from the referenced combination. At best, the Examiner has merely found some of the pieces of Appellants' invention in prior art references, which are far afield from that of the invention as claimed.

Accordingly, for at least the aforementioned reasons, Appellants respectfully request the honorable members of the Board of Patent Appeals and Interferences to

reverse each of the outstanding rejections in connection with the present application and allow each of claims 5 and 7 in connection with the present application.

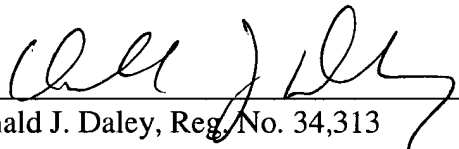
This Appeal Brief was presented in triplicate.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Appellants hereby petition for a four (4) month extension of time for filing an Appeal Brief and submit the required \$1480.00 extension fee herewith. The Commissioner is hereby authorized in this reply to charge payment for the Appeal fee of \$330.00 and the four (4) month extension of \$1480.00, or credit any overpayment, to Deposit Account No. 08-0750, as well as for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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